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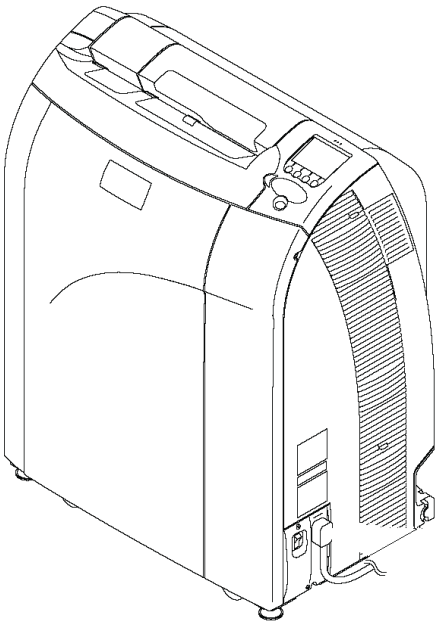
Philips Medical Systems

Release Bulletin PCR Eleva S and S plus Reader

Software Version 1.3

4512 201 04491

Level 0 Documentation



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SERVICE MANUAL - UNIT
732

Release Bulletin PCR Eleva S/ S plus Reader
Software Version 1.3

Author: B. Freytag

4512 201 04491

In case there are any questions concerning this manual,
please, send this LOPAD via fax to +49/(0)40/5078 2481

File: RB S_Splus 01621AA

List of pages and drawings (LOPAD)

Manual Order No: 4512 988 01621
released 03/2006

1 ... 29	(06.0)

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1 CD	114Y5129002A03/ 4512 116 08401	part of the Reader's accessories or delivered via Service Logistics

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1. Release Information

1.1. Supplied Software

PCR Eleva S/ S plus Reader SW version 1.3 ..... 4512 201 04491

Consisting of:

- 1 CD 'CR-IR 356/357 APL Software Version 1.3' ..... 4512 116 08401 = 114Y5129002A03
- this Release Bulletin 4512 988 01621

The **application software** of the Reader is delivered on a CD ROM and has to be loaded onto a separate PC, e.g. the PCR Eleva Workspot, connected to the Reader.

After power-on, the Reader establishes a network connection to the console and gets from there date and time information. Please refer also to chapter 2 "**Relation between Reader and the FTP Server**".

The **machine data** floppy/CD contains a backup of the initial specific scanner data and is marked with the s/n of the Reader.

1.2. Compatibility

PCR Eleva S Reader	4512 201 0428.
PCR Eleva S Plus Reader	4512 201 0429.
PCR Eleva Workspot SW	4512 201 03702 Rel. 1.0.1 →

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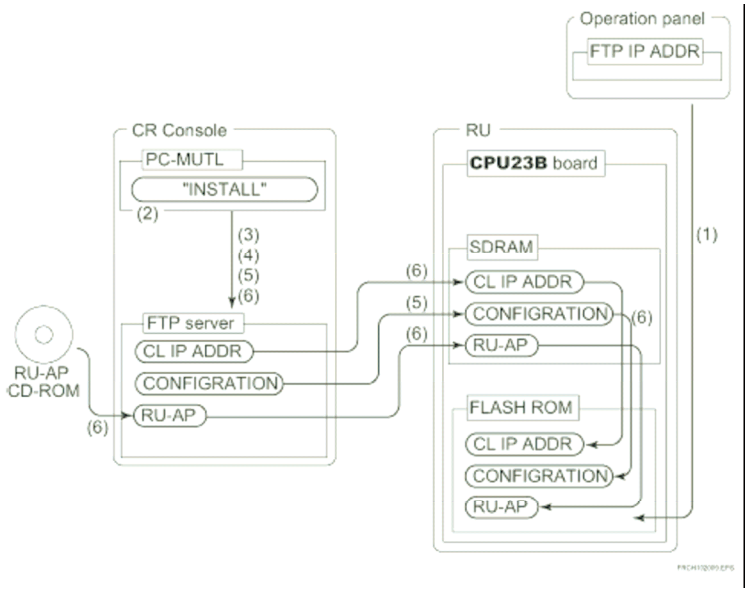
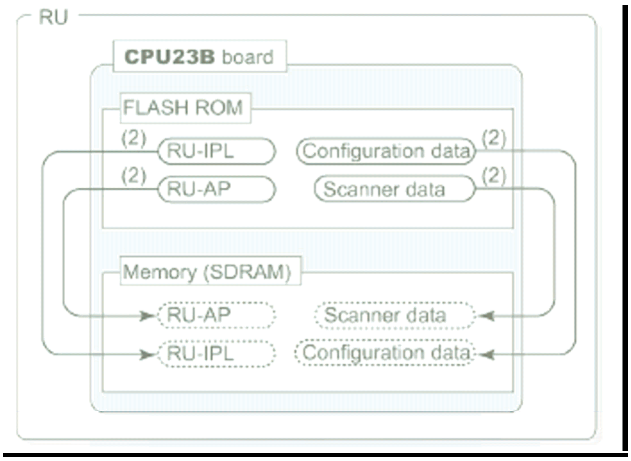
2. Relation between Reader and the FTP Server

The FTP Server of the Reader (= Reader Unit RU) is a separate PC (= Console CL) called Workspot in PCR Eleva systems.
Both communicate via a Fast Ethernet connection.
A detailed description can be found in the service manual of the Reader, chapter Machine Description.
Flow of image data: The image data read from the IP is stored in the SDRAM of the CPU board (CPU23B), and transferred to the console via the network.
Flow of log data: The log data is written into the FTP server upon RU shutdown processing or upon occurrence of a FATAL error. The log data is retained in the FTP server until a certain amount of that data is reached, and, once that amount is exceeded, the data is overwritten on a first-in, first-out basis.

Data Flow during installation:



Data flow during boot- up:



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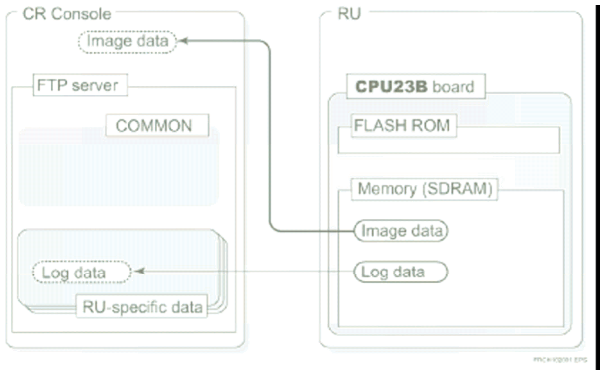
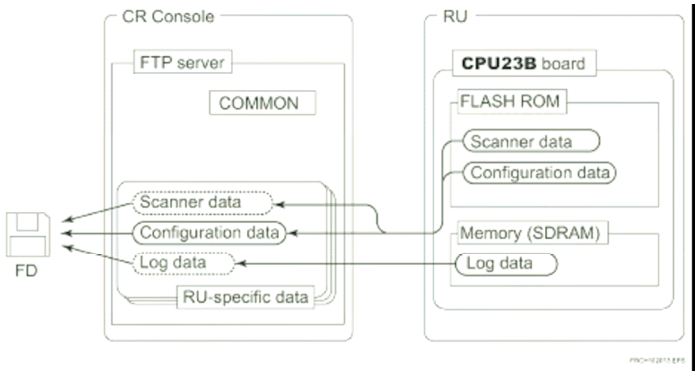
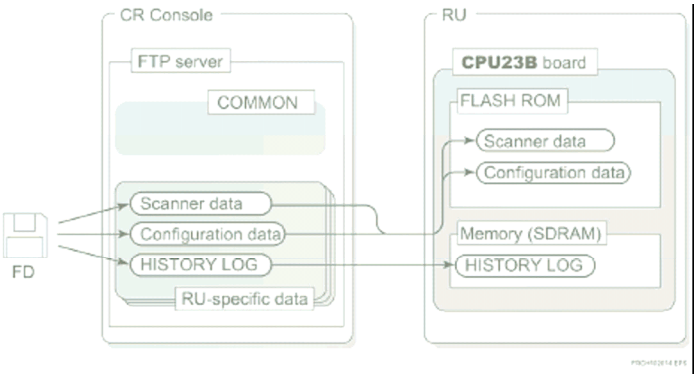
Data flow during routine processing:



Data flow during a backup:



Data flow during a restore:



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3. PCR Eleva and S and S plus Reader

PCR Eleva systems have running the service program Field Service Framework (FSF) on its so called Workspot. All the service relevant work (local and remotely) has to be done via this tool protected by Philips. Further information is included in the Release Bulletin of the PCR Eleva Workspot.

The following service menus of FSF activate the so called RU PC- TOOL program:

SW installation: General Functions/ Install software/ PCR Reader software

General: General Functions/ Utilities/ Start Maintenance Utility for PCR Reader (PC-MUTL)

Configuration: Configuration/ Local workspot PC/ PCR Reader configuration via PC-MUTL

Diagnostics: Diagnostics/ Log Viewer/ Maintenance Utility for PCR Reader (PC-MUTL)

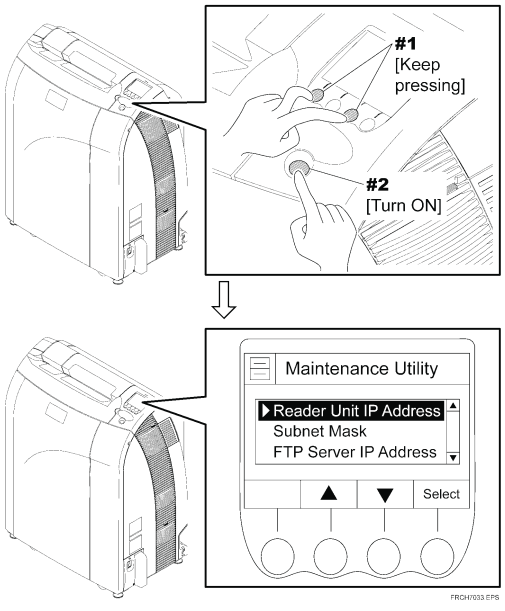
4. Initial Software Installation and Setup

Precondition:
- All the network related information is available: IP addresses, IP names, netmasks
- At least the operating system is installed at the PC.
- It is recommended to use a separate Fast Ethernet switch instead of the hospital network during the installation of the SW.
- Have on hand the CD containing the application software of the Reader.

4.1. Setting the IP Addresses at the Reader

1. Turn ON the circuit breaker of the Reader and start up the PC the Reader is connected to.

2. Turn ON the RU power while pressing the first and third buttons from the left on the operation panel. Keep pressing the first and third buttons from the left until the “Maintenance Utility” window appears on the operation panel.



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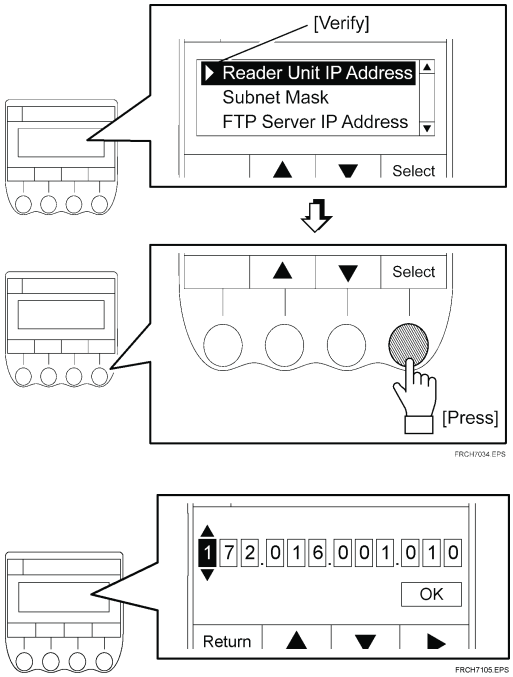
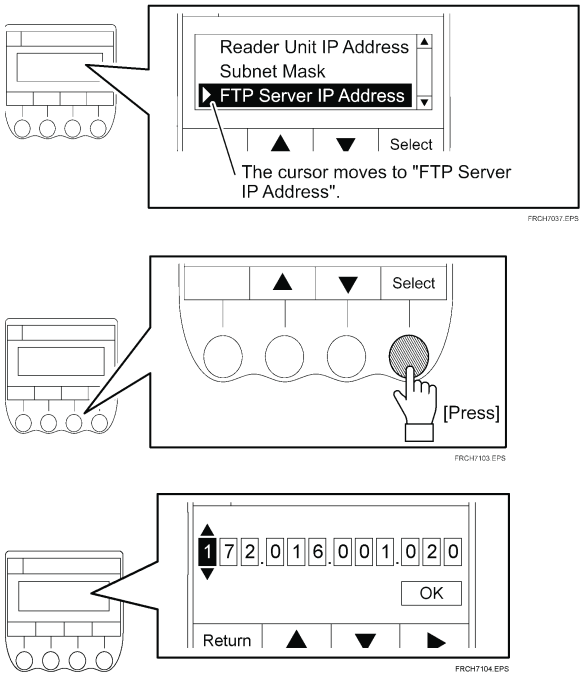
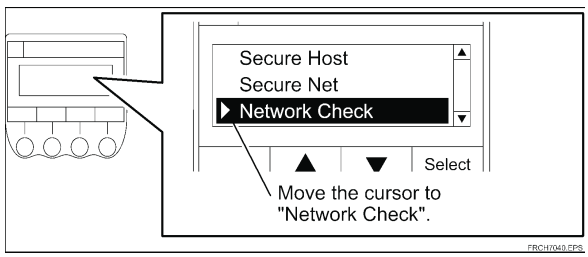
3. Set the IP address of the Reader.



4. Set the IP address of the PC (FTP Server) at the Reader.



5. Check the network connection.



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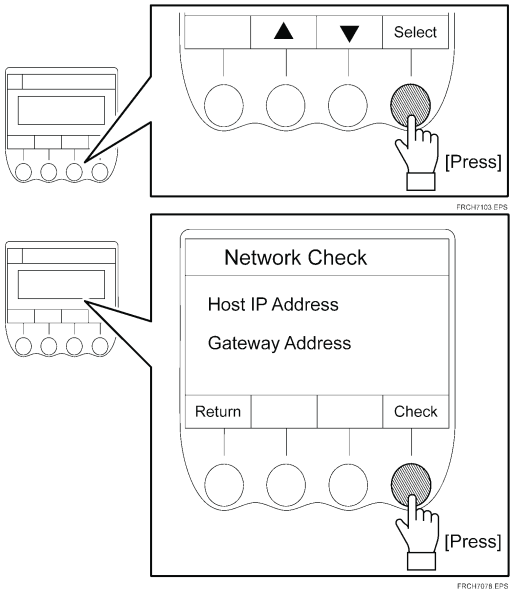
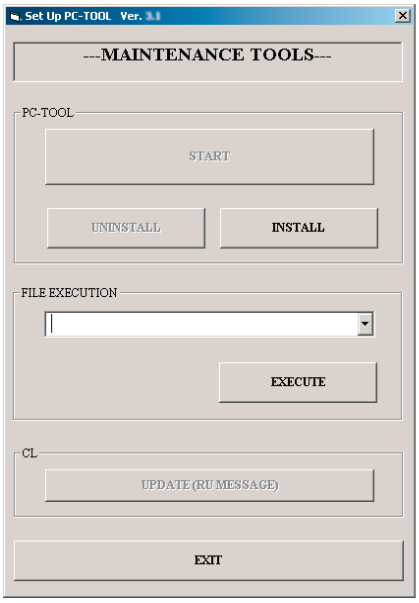


4.2. Installing the RU PC- Tool on the PC (FTP- Server)

1. Insert the CD 'CR-IR 356/357 APL Software Version ...' into the CD-ROM drive of the PC and start the FSF menu ***General Functions/ Install software/ PCR Reader software***.
   A set- up program is started from CD.

2. Click [**Install**]:



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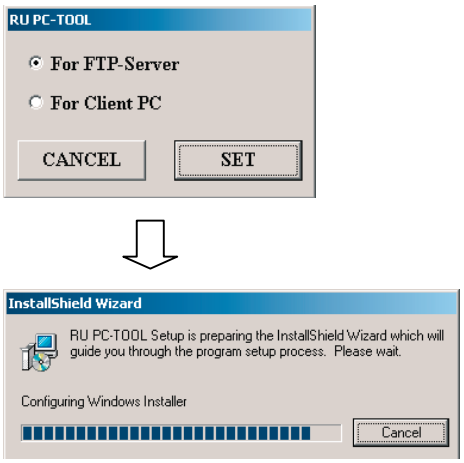
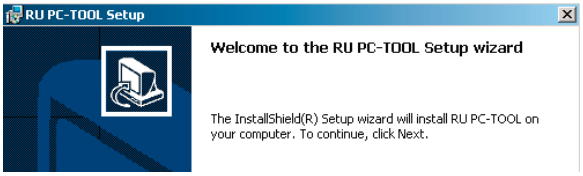
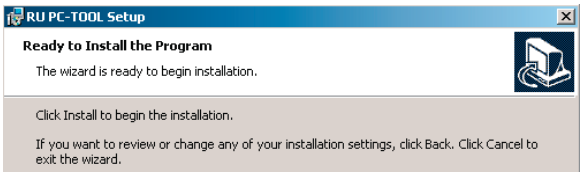
3. Select “For FTP-Server”, and click on [SET].



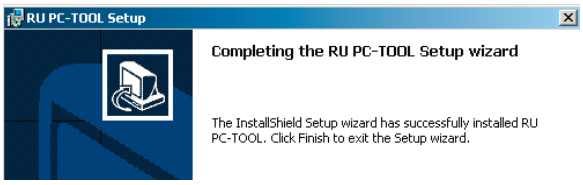
4. Click [**Next**]:


RU PC-TOOL Setup
Welcome to the RU PC-TOOL Setup wizard
The InstallShield(R) Setup wizard will install RU PC-TOOL on your computer. To continue, click Next.

5. Click [**Install**]:


RU PC-TOOL Setup
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

6. Click [**Finish**]:


RU PC-TOOL Setup
Completing the RU PC-TOOL Setup wizard
The InstallShield Setup wizard has successfully installed RU PC-TOOL. Click Finish to exit the Setup wizard.

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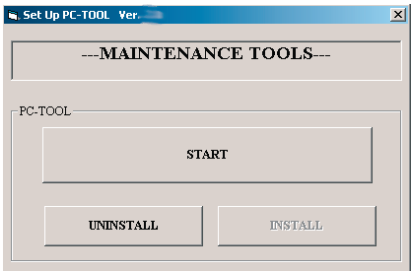
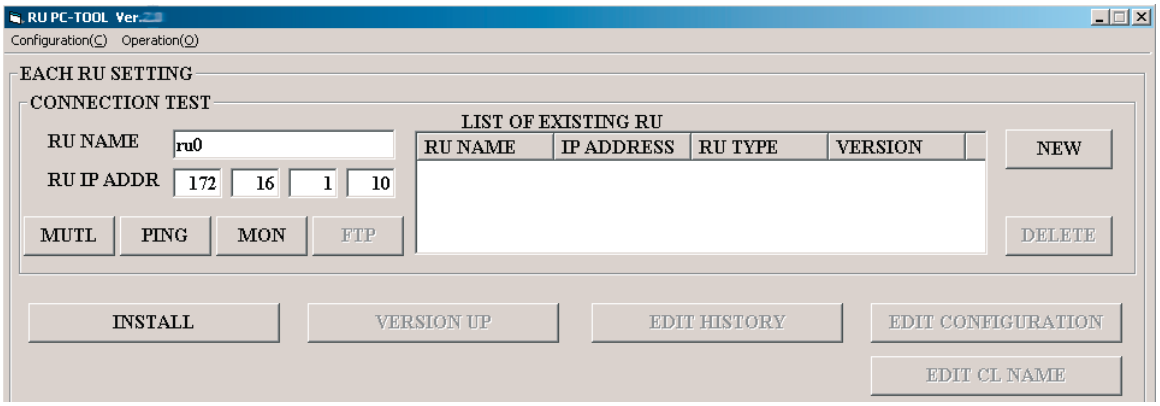
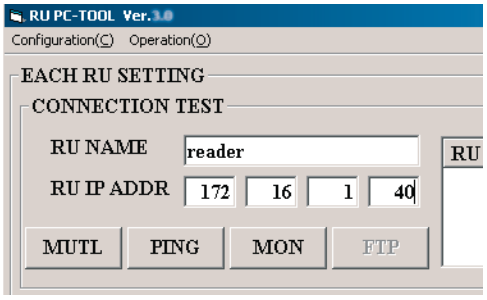
4.3. Installing the Application Software of the Reader on the PC

1. In the set- up program click [**Start**] to install the application software of the Reader:

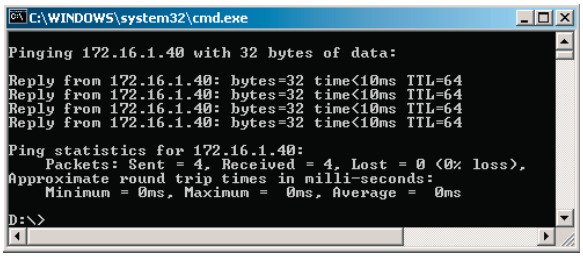


2. Click [**New**] and enter the RU name and RU IP address of the Reader:





3. Click [**PING**] to check the communication. The following window must be displayed.



Close this window.

4. Click [**Install**]:

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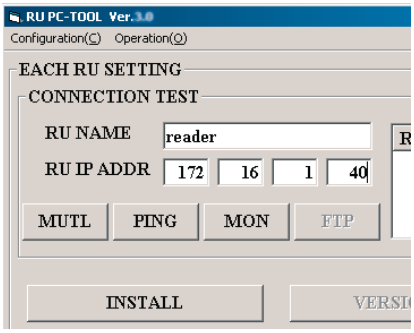
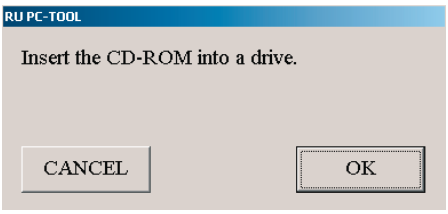
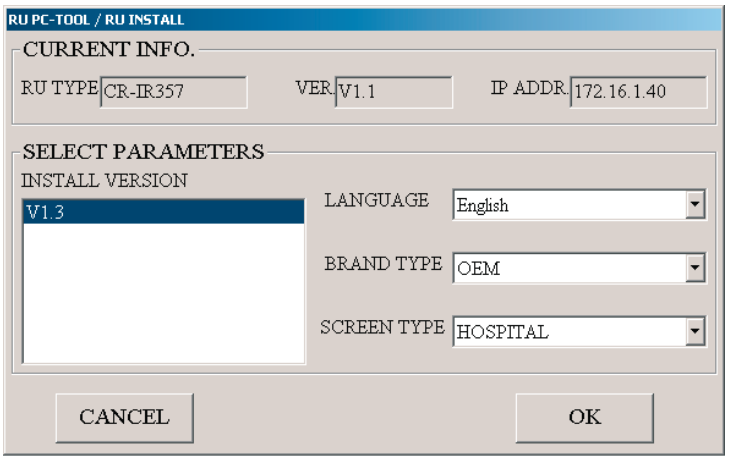


5. Click [**OK**]:

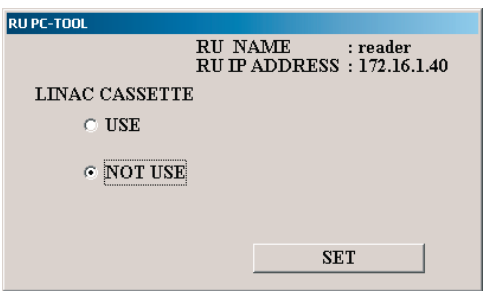


6. Select the following items and click [**OK**]:

- Language: The language for the display panel of the Reader.
- Brand Type: **OEM**
- Screen Type: **HOSPITAL**
- Install Version: **1.3** (example only, select the highest of the listed versions)



7. Select **NOT USE** and click [**SET**].



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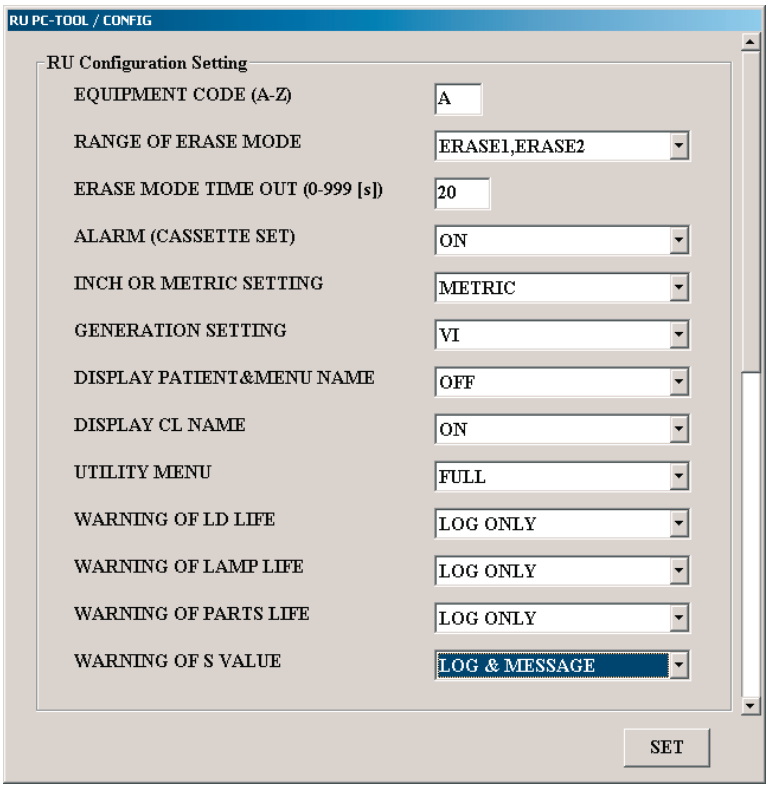
8. Enter the configuration data and click [**SET**].



EQUIPMENT CODE	Sets the identification code A…Z of a Reader. Use always 'A'
RANGE OF ERASE MODE	Sets the erasure mode which can be selected by the “Mode change” button of the Reader. Default: ERASE 1, ERASE 2 - ERASE 1: Primary erasure can be selected. - ERASE 1, ERASE 2: Both primary and secondary erasures can be selected.
ERASE MODE TIMEOUT	Sets the period of time since “primary erasure” or “secondary erasure” is selected by the “Mode change” button of the Reader until “Image reading” is automatically restored in the display unit. When “0” is set, the mode is kept changed to “primary erasure” or “secondary erasure”. Default : 20 sec
ALARM (CASSETTE SET)	Sets alarm ON/OFF when cassette is inserted. - ON : Alarm sounds. - OFF : Alarm does not sound
INCH OR METRIC SETTING	To be selected according to the mechanical configuration. (mechanical default: METRIC) - INCH - METRIC
GENERATION SETTING	Selects the IP type to be used in the machine. - VI (default): VI-type IP is to be used - VN: Also VN-type IP is to be used (increases the erasure times also for VI)
DISPLAY PATIENT & MENU NAME	Always set to “OFF”.
DISPLAY CL NAME	- OFF (default): The CR Console name (workspot) is not displayed. - ON: The CR Console name (workspot) is displayed.
UTILITY MENU	Specifies the menu items to be displayed when the “Utility” button on the operation panel is pressed. Use always FULL.
WARNING OF LD LIFE	Sets the warning indication of the laser life. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.
WARNING OF LAMP LIFE	Sets the warning indication of the erasure lamp life. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.
WARNING OF PARTS LIFE	Sets the warning indication of the PM part life. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.
WARNING OF S VALUE	Sets the warning indication of the S value. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.

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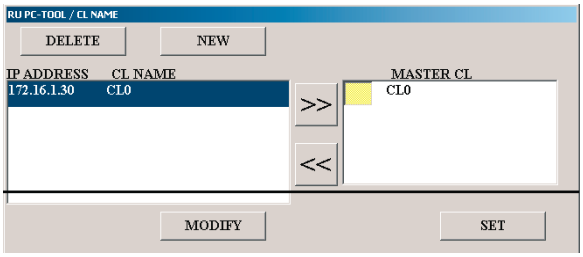
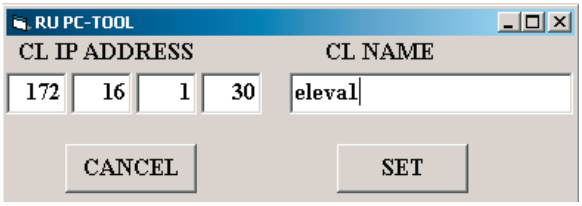
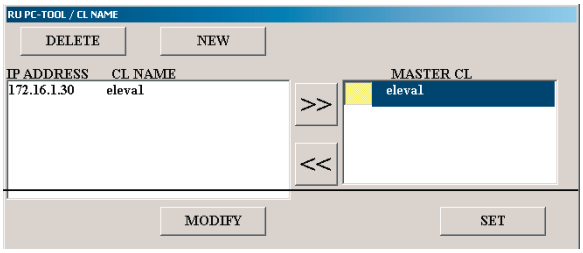
9. Select the default IP address and click [**Modify**]:



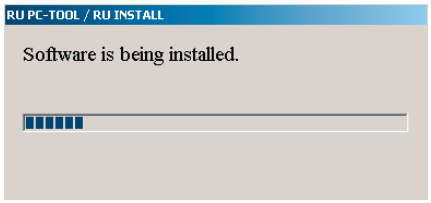
10. Enter the IP address and the IP name of the PC and click [**SET**]:

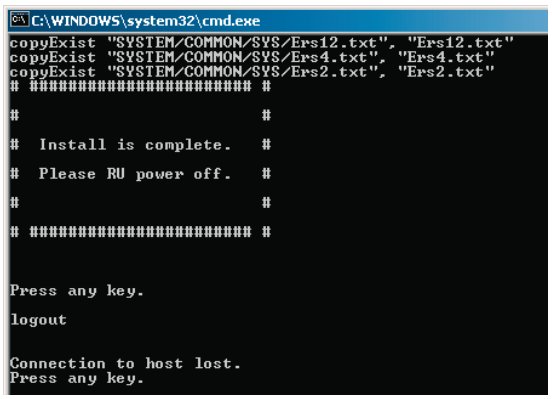


11. Click [**SET**]:



The following windows must be displayed:





Note:
While data is being written into the FLASH ROM of the Reader, never turn OFF the power.
If the power is turned OFF, the program residing in the memory is corrupted, so that the Reader cannot be rebooted.
Writing into the FLASHROM will take a few minutes.

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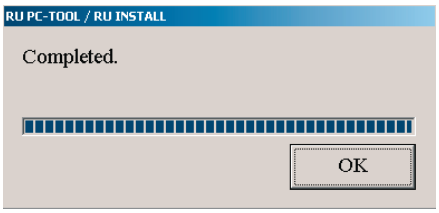
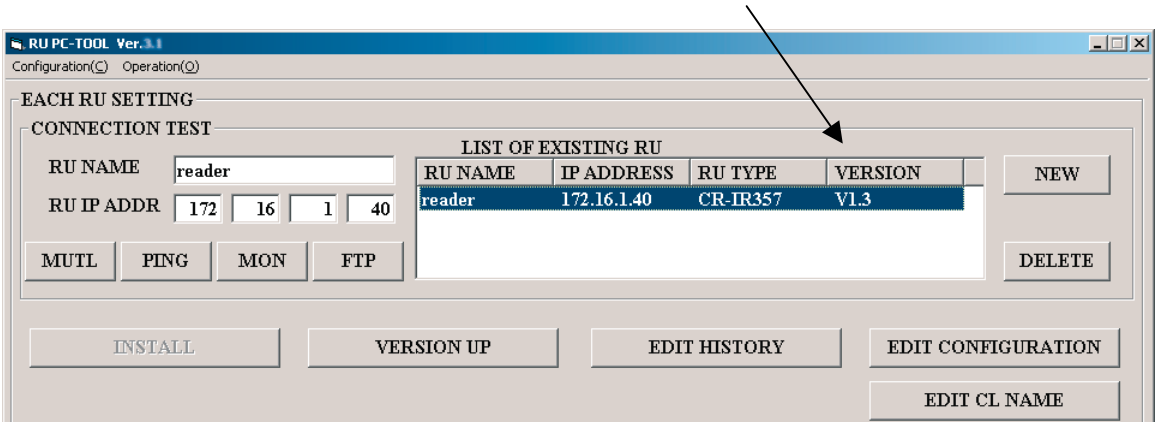
During the upgrade all the LED's of the display are switched on.

12. Press the <**Enter**>.

13. Click [OK] to finish the installation:



14. Check the version of the Reader software: --> **1.3** (example only)



15. Click [**X**] to close the **RU PC- Tool**.

16. Click [**EXIT**] to close the set-up program.

17. Remove the CD and go back to the Release Bulletin of the application PC.

18. Restart the Reader.

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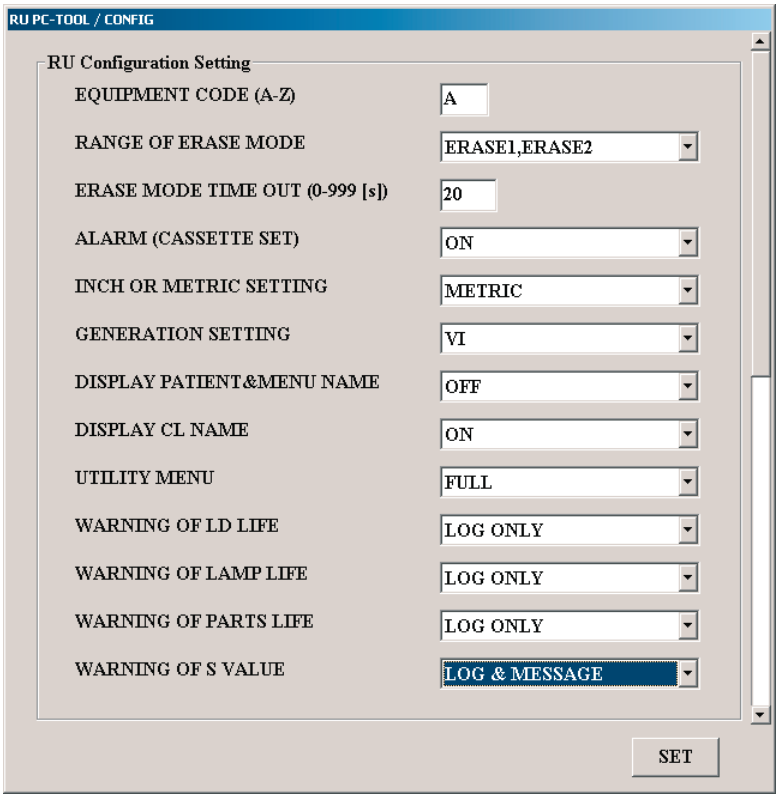
5. Configuration

The meaning of the configuration parameters are described in the service manual of the Reader.
See section Maintenance Utility.

5.1. Changing the Configuration

1. Start up the RU PC- Tool as described in chapter **Starting the RU PC- Tool**.
2. From the **LIST OF EXISTING RU**, click the Reader which configuration file is to be set.
3. Click [**EDIT CONFIGURATION**]:



EQUIPMENT CODE	Sets the identification code A…Z of a Reader. Use always 'A'
RANGE OF ERASE MODE	Sets the erasure mode which can be selected by the "Mode change" button of the Reader. Default: ERASE 1, ERASE 2 - ERASE 1: Primary erasure can be selected. - ERASE 1, ERASE 2: Both primary and secondary erasures can be selected.
ERASE MODE TIMEOUT	Sets the period of time since "primary erasure" or "secondary erasure" is selected by the "Mode change" button of the Reader until "Image reading" is automatically restored in the display unit. When "0" is set, the mode is kept changed to "primary erasure" or "secondary erasure". Default : 20 sec
ALARM (CASSETTE SET)	Sets alarm ON/OFF when cassette is inserted. - ON : Alarm sounds. - OFF : Alarm does not sound
INCH OR METRIC SETTING	To be selected according to the mechanical configuration. (mechanical default: METRIC) - INCH - METRIC
GENERATION SETTING	Selects the IP type to be used in the machine. - VI (default): VI-type IP is to be used - VN: Also VN-type IP is to be used (increases the erasure times also for VI)

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DISPLAY PATIENT & MENU NAME	Always set to “OFF”.
DISPLAY CL NAME	OFF (default): The CR Console name (workspot) is not displayed. - ON: The CR Console name (workspot) is displayed.
UTILITY MENU	Specifies the menu items to be displayed when the “Utility” button on the operation panel is pressed. Use always FULL.
WARNING OF LD LIFE	Sets the warning indication of the laser life. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.
WARNING OF LAMP LIFE	Sets the warning indication of the erasure lamp life. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.
WARNING OF PARTS LIFE	Sets the warning indication of the PM part life. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.
WARNING OF S VALUE	Sets the warning indication of the S value. - LOG ONLY (default): Only write into the error log - LOG & MESSAGE: Write into the error log and display of the error message.

4. Change the data as needed.

5. When done click [**SET**]. The configuration is saved to hard disk and the system returns to the main menu.

5.2. Changing IP Address and IP Name of the Reader

Be carefully during a change of IP addresses. It is recommended to disconnect the system from an existing hospital network and to use an own network switch temporarily.

1. Reader: Delete the old IP address and enter the new one by using the Reader's Maintenance Utility.

2. PC (FTP- Server): Delete the old registered Reader unit at the FTP Server by using the RU PC- Tool.

3. Perform a complete new installation of the Reader according to the chapter 'Installing the Application Software of the Reader at the FTP- Server’.

4. Restart the system and check both the application and the service functionality.

5.3. Changing IP Address and IP Name of the FTP- Server

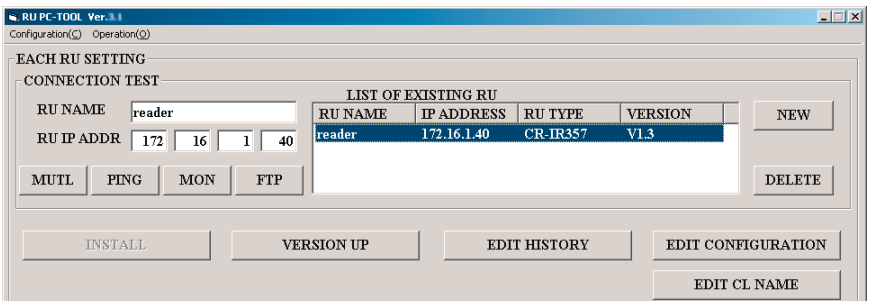
1. At the Reader: Delete the old IP address of the FTP- Server and enter the new one by using the Reader's Maintenance Utility.

2. At the PC (FTP- Server): Change the IP address or the name via the facility of FSF according to the Release Bulletin of the PCR Eleva.

3. Restart the PC.

4. Start the RU PC- Tool and select the Reader connected.

5. Click on [**EDIT CL NAME**]:



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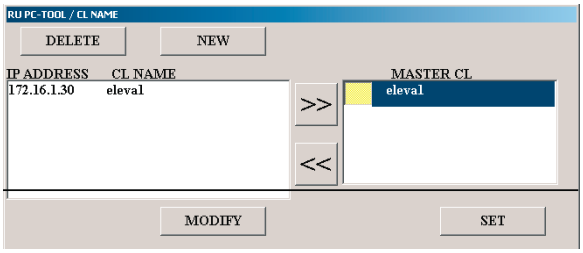
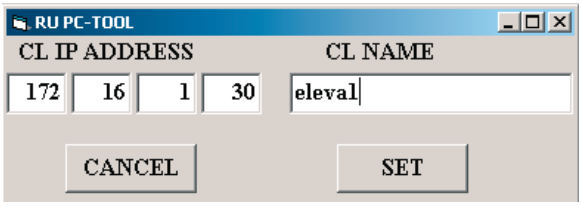
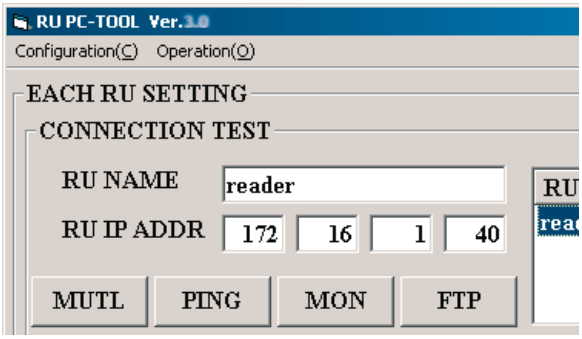
6. Select the console and click [**Modify**]:



7. Enter the new IP address and/or the new IP name of the PC and click [**SET**]:



8. Click on [PING] and [FTP] to check the communication with the Reader:



9. Restart the system and check the normal application.

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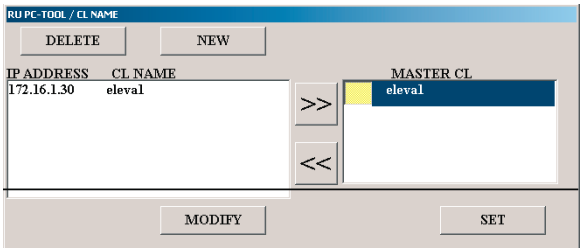
5.4. Trouble with Configuration

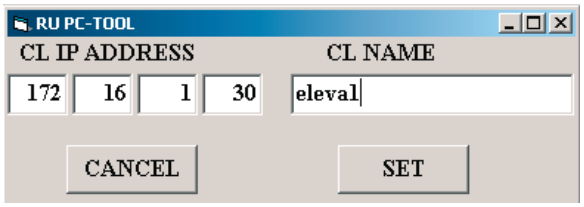
Example: 'CR Console communication error'.
Line error indication on the display panel of the Reader.

Cause: IP names and IP addresses configured at the PC do not match the configuration at the Reader.

1. Solution: Check the FTP Server for the Reader at the PC:
- Start the RU PC- Tool.
- Select the Reader unit.
- Click on [Edit CL name].



- Select the configured console for the Reader.
- Click on [MODIFY] to change the data.



- Enter the matching IP address or IP name and click [Set].

Be sure that the entered data are identical with the one set in the operating system.

2. Solution: Check or change the IP addresses configured at the Reader:
- Enter the maintenance tool at the Reader.
- Select [RU IP address].
- Check the IP address of the Reader.
- Select [FTP- Server].
- Check the IP addresses of the FTP-Server.

In case the IP address of the Reader has been changed, the old configured Reader unit must be uninstalled at the PC.
After this a software installation has to be performed for the new Reader.

3. Solution: Check 'Reader name' and 'Reader type' inside the configuration of the PC (Configuration/ Network/ Workspot status of PCR Reader).

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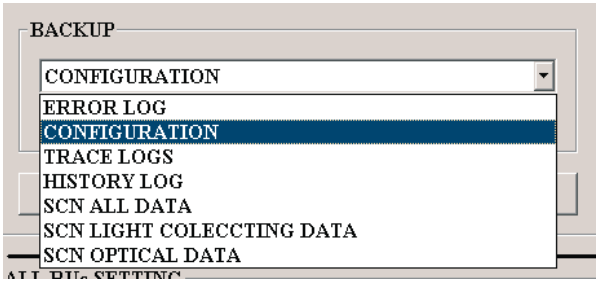
5.5. Backup and Restore

Start the RU PC- Tool at the PC.
Have on hand a formatted diskette or the diskette containing the backup data.

5.5.1 Backup

1. To back up reader-specific data select the data you want to save from the list:

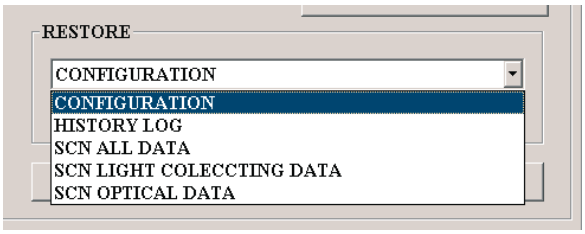


   Recommend data: CONFIGURATION, SCN ALL DATA, HISTORY LOG

2. Click [**EXECUTE**] and follow the instruction given.

5.5.2 Restore

1. To restore reader-specific data select the data you want to restore from the list:



2. Click [**EXECUTE**] and follow the instruction given.

In the scope of the delivery of each Reader is a CD-R marked with **machine data** and the s/n of the Reader. This medium contains the specific scanner data.

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6. Uninstall Software

Two software packages of the Reader are stored at the PC, the RU PC- Tool and the application software of the Reader unit.

Uninstall the RU PC- Tool:

1. Insert the CD 'CR-IR 356/357 APL Software Version ...' into the CD-ROM drive of the PC and start the FSF menu ***General Functions/ Install software/ PCR Reader software***.
   The set- up program is started from CD.

2. Click [Uninstall] and follow the instructions of the uninstall wizzard.

Uninstall the application software:

1. Insert the CD 'CR-IR 356/357 APL Software Version ...' into the CD-ROM drive of the PC and start the FSF menu ***General Functions/ Install software/ PCR Reader software***.
   The set- up program is started from CD.

2. Click [Start] to open the RU PC- Tool.

3. Click [Uninstall].
   The application software and the configuration of **all** Readers will be removed.

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7. Servicing the Reader

7.1. Local Service

All service functions of the Reader are managed by the program **RU PC- Tool** running on the PC.
A subpart is the program **MUTL** offering unit tests, board tests and shading and sensitivity adjustments.

Starting the RU PC- Tool:

1. At the PC start FSF menu ***General Functions/ Utilities/ Start Maintenance Utility for PCR Reader (PC-MUTL)***.

2. Select the Reader unit in the **LIST OF EXISTING RU**. Now all service functions are selectable.

For further explanations please refer to the service manual of the Reader.

7.2. Remote Service

All the service functions are supported by the RU PC- Tool running on the PC connected.
Since this tool can be started in FSF only the remote connection via FSF is specified.

Login data for a FTP connection to the Reader's path at the Eleva workspot are as follows:

	S plus Reader	S Reader
login	cr-ir356	cr-ir357
password	cr-ir356	cr-ir357

With the aid of the RU PC- Tool the actual error and trace logs will be sent to the FTP Server.
From there the interesting files can be transferred to the remote PC.

Interesting paths and files at the FTP Server:

Basic path:	C:\Program Files\FujiFilm\FCR\[Reader type]\SYSTEM\[IP address]\ ...
Software version:	version.dat
Error logs:	...\LOG\ERROR*.* (all files)
Trace data:	...\TRACE\ *.* (all files)
IOT data:	...\IOT\iot.log
Configuration:	...\CONFIG\Irset.cfg
History file:	...\STATISTIC\History.cfg
Scanner data:	...\MACHINE\COLLECT\ *.DAT
	...\MACHINE\OPTICAL*.DAT

7.3. Local Service via Service PC

The Reader can also be maintained by a Service PC connected to the existing network.
For this the RU PC TOOL must be installed as CLIENT PC TOOL at the Service PC as follows:

1. Adapt the IP address and netmask of the Service PC to an address range used at the site.

2. It is recommended to separate the Reader, the Workspot and the Service PC from the official hospital network by using an own network switch.

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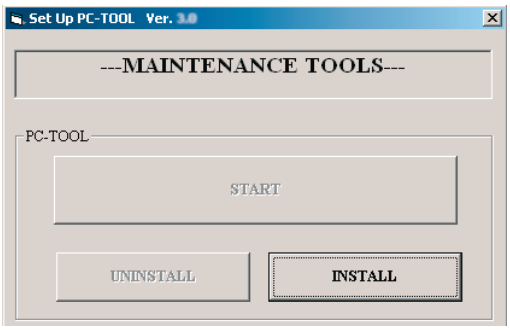
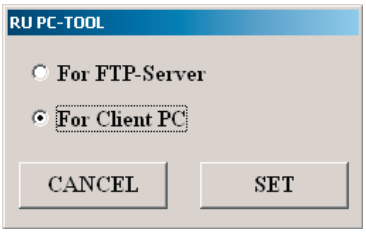
3. Insert the CD 'CR-IR 356/357 APL Software Version ...' into the CD-ROM drive of the Service PC. A set- up program is started from CD.

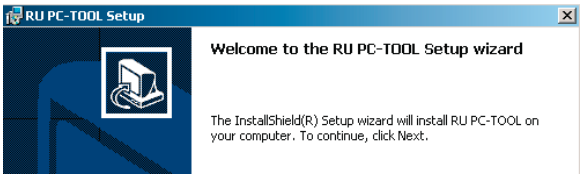
   Click [**Install**]:



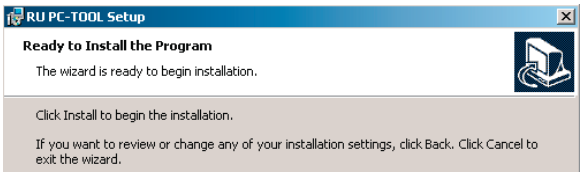
4. Select “For Client PC”, and click on [SET].



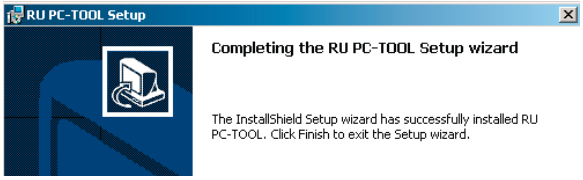
5. Click [**Next**]:


RU PC-TOOL Setup
Welcome to the RU PC-TOOL Setup wizard
The InstallShield(R) Setup wizard will install RU PC-TOOL on your computer. To continue, click Next.

6. Click [**Install**]:


RU PC-TOOL Setup
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

7. Click [**Finish**]:


RU PC-TOOL Setup
Completing the RU PC-TOOL Setup wizard
The InstallShield Setup wizard has successfully installed RU PC-TOOL. Click Finish to exit the Setup wizard.

8. Click [**Start**] to open the Client-PC Tool.

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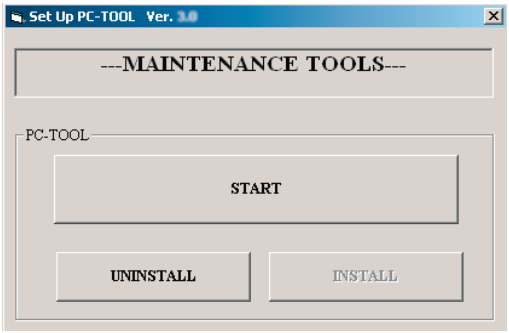
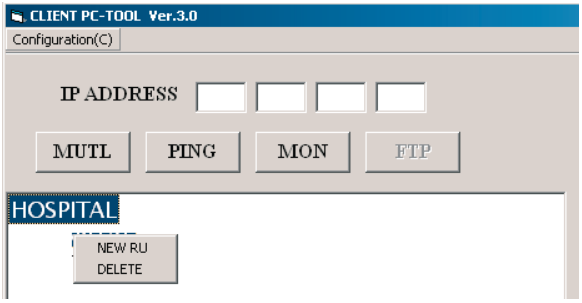
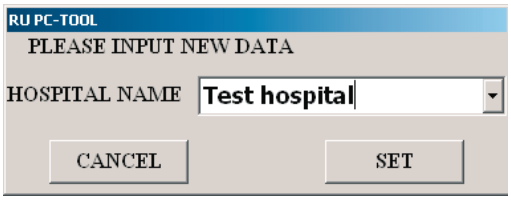
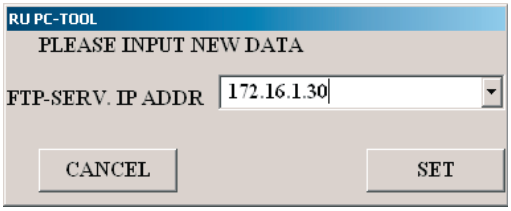
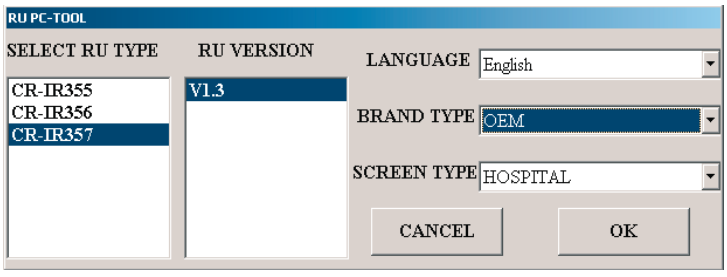


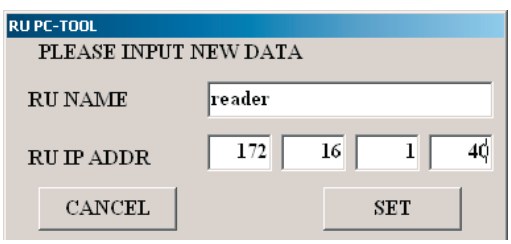
9. Click the right mouse button on HOSPITAL and create a so called hospital list containing the IP addresses and names of all the FTP servers (Eleva Workspot) and Readers (RU) according to the sequence shown below.











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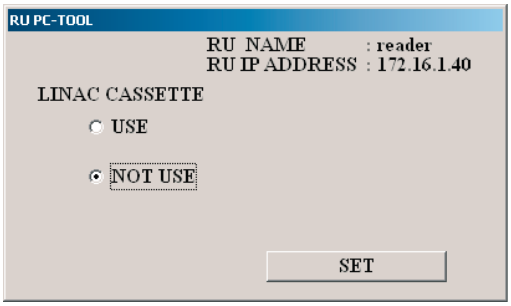
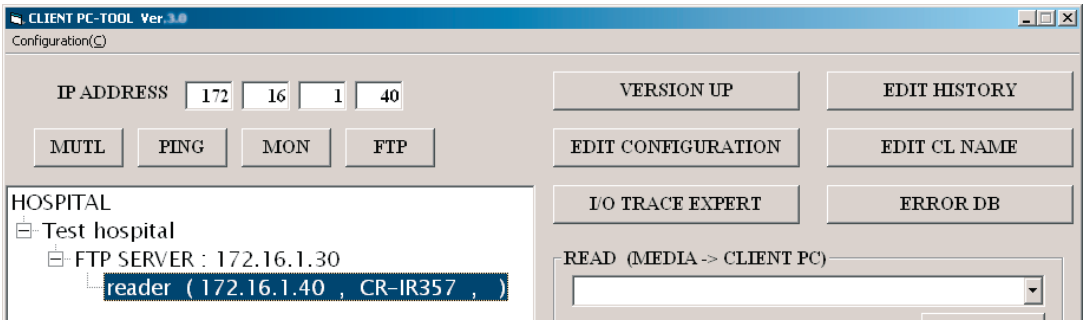
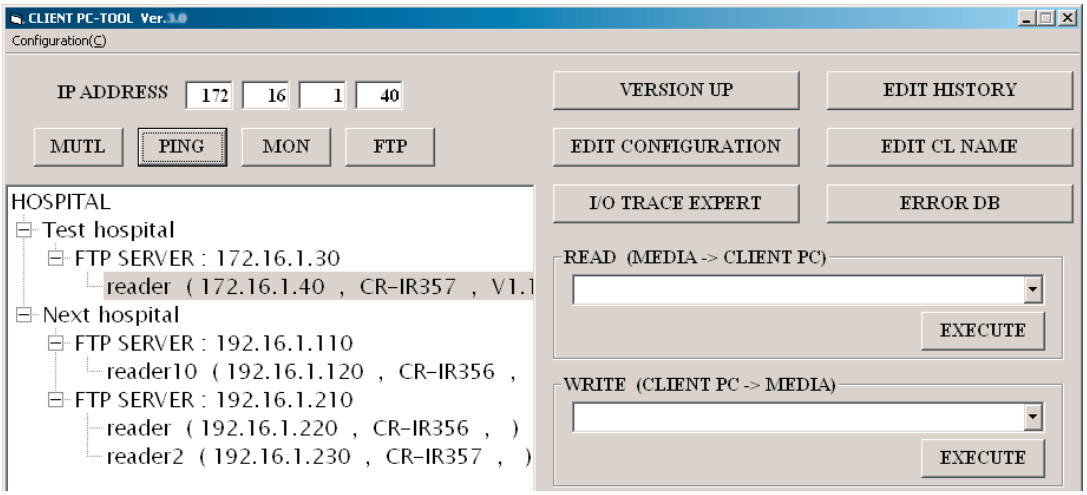
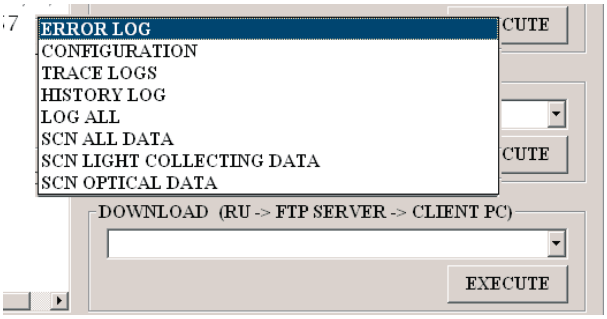






10. Download the actual logs and settings from the Reader to the Service PC:



11. Click on the Reader to be serviced and select the service function to be wished.

Most of the service function can be used in parallel to the normal application mode of both the Reader and Workspot.

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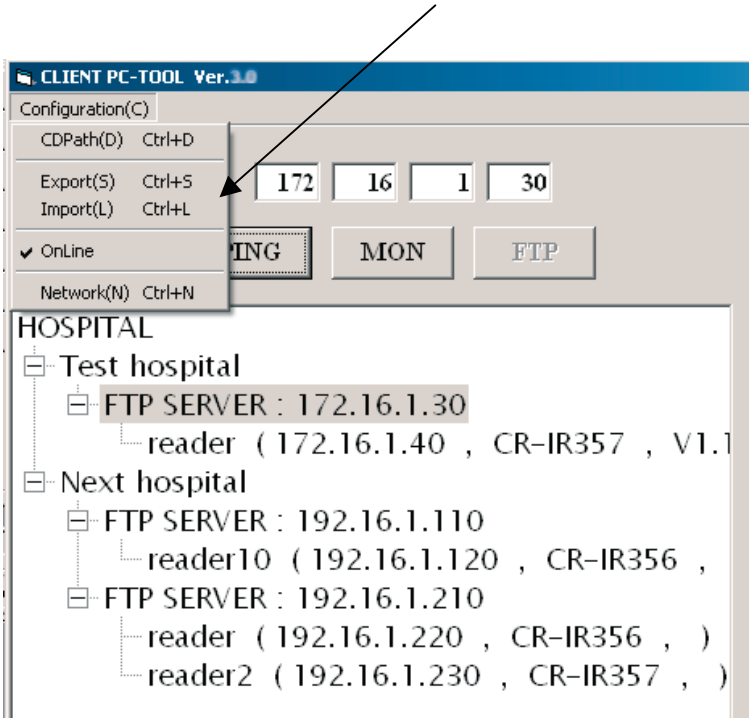
This tool can also be used offline.
The relevant files (history data, configuration, error logs) must be downloaded from the Reader before.
The data have to be copied into the **import** path configured in the Client- PC Tool.



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8. Sensitivity and Shading Adjustment

Precondition:

The scanning unit of the Reader has been cleaned before.

The image format and the leading edge detection are well adjusted, especially no white blank portions are visible at the edges.

All the current scanner data have been copied to a floppy diskette by using the service program RU PC-Tool.

The complete PCR system is running in the normal application mode.

Reference documents of the Reader:

- Section: Checks MC Chapter: Shading/ Sensitivity Correction

8.1. Sensitivity Check with Type ST

1. Uniformly expose the largest IP of the type ST (e.g. 14" x 17" or 14" x 14") and ST-BD (e.g. 24 x 30 cm) with a dosage of about **1mR / 8.7 µGy** at about **80kV**.
   Use a large SID (min.1.8m). Don't use any filters. Open the shutters of the collimator completely.
   The green marker of the cassette shows to the anode of the tube.
   Check the dosage with a dosimeter.
2. Register (barcode) the IP under the examination ***SERVICE/ TEST*** and the view ***SENSITIVITY***.
   Be sure that this view is programmed to EDR = 1 (semi mode) and MPM code 0900.
   Use post processing code U0000900 (GA=1, GT=A, GC=1.2, GS=0.0, RN=3, RT=F and RE=0.0).
   Alternatively the examination SERVICE/ TEST/ Semi Mode/ AVE 4.0 with the MRM code 090E can be used. The MRM code 090E with L = 4 will produce an image with a more homogeneous gray level and lower tolerances respectively.
3. **10 ... 11 minutes** after the exposure has been made, enter the cassette into the Reader.
4. For the result look at the image console:
   S value: **170 ... 200 ... 250**
   Pixel value: **1850 ... 2050 ... 2250** valid for PCR Eleva and 1 mR/ 8.7 µGy (12 bit, 0= white)
   2150 ... 2350 ... 2550 valid for PCR Eleva and 2 mR/ 17.4 µGy

   If there are greater deviations perform the sensitivity and shading correction.

   Note: It is possible to use a greater dose, e.g. 2 mR/ 17.4 µGy.
   The S value will decrease respectively to 85 … 125.

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8.2. Shading/ Sensitivity Adjustment for Standard Type ST

During this procedure three adjustments will be performed automatically:
- Sensitivity
- Shading
- Shading speed for ST

1. Uniformly expose the largest cassette with a dosage of about **1mR / 8.7 μGy** at about **80kV**.
   Use a large SID (min.1.8m). Don't use any filters. Open the shutters of the collimator completely.
   Green label of the cassette shows to the anode of the tube.
   Check the dosage with a dosimeter and write down the measured value and the time.
   Now you have 10 minutes until the IP must be read out.
2. Register (barcode) the IP under the examination ***SERVICE/ TEST*** and the view ***SENSITIVITY***.
3. Start in FSF ***General Functions/ Utilities/ Start Maintenance Utility for PCR Reader (PC-MUTL)*** the ***RuPcTool*** at the PC.
4. Select the Reader to be adjusted.
5. Select ***MUTL***.
6. Quit the message window 'Maintenance in progress...' at the Reader by pressing button 1 and 3 together.
7. Select ***For Design/ Scanner/ Scanner Sensitivity Data*** and write down the following values:
   Sensitivity HV value/ One Side ST: ..... e.g. 508
8. Leave this screen with CANCEL.
9. Select ***Scanner Check/ Correction***.
10. In ***Shading/Sensitivity Correction*** enter the measured dose in [mR], e.g. 1.05, and click SET and OK.
11. After **10 minutes** the IP has been exposed put the cassette into the Reader.
12. Check for 'Result-OK' in the window of RU PC-TOOL.
13. Select ***For Design/ Scanner/ Scanner Sensitivity Data*** and write down the new HV value:
    Sensitivity HV value/ One Side ST: .....
14. Leave the RU PC-Tool.
15. Repeat the sensitivity check. The S value must be in the range 180 ... 200 ... 220.
16. Make a backup of the scanner data (all).

Note: The sensitivity adjustment can also be executed by using a dose in a range of 0.5 to 10 mR.
Recommended is a value of 1…2 mR.

8.3. Sensitivity Tolerances for Type ST

Dose:	1 mR ± 10%	Measured in 1% resolution, at 80 kV and in 1.8m distance, without any filter. The deviation from 1mR has to be entered in 1% accuracy as the correction factor into the Reader.
S value:	170...200...250	During check -15% and +25 % deviation
	180...200...220	After adjustment 10 % deviation

Pixel value at Workspot PCR Eleva (12 bit resolution, 0 = white):

1850 ... 2050 ... 2250	5% deviation in main scan direction, 10% in subscan direction

If the exposures have been read out with L= 4 instead of L=1, the tolerances of the pixel values and of the density on film will decrease accordingly.

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